

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Period: \_\_\_\_\_

*Algebra 1 CRT Review Version 2*

1. Which of the following numbers are rational?

$3.20615\dots, -\sqrt{9}, 3.5, \sqrt{2}, 5.\bar{3}$

- a.  $3.20615\dots$  and  $\sqrt{2}$
- b.  $3.20615\dots, 3.5$ , and  $5.\bar{3}$
- c.  $-\sqrt{9}, 3.5$ , and  $5.\bar{3}$
- d.  $3.20615\dots, -\sqrt{9}, 3.5, \sqrt{2}, 5.\bar{3}$

2. The  $\sqrt{50}$  lies between which two integers?

- a. 7 and 8
- b. 25 and 26
- c. 6 and 7
- d. 24 and 25

3. Simplify  $2\sqrt{6} - 4\sqrt{6} + \sqrt{24}$

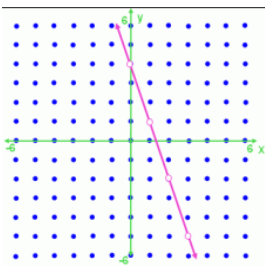
- a. 0
- b.  $-2\sqrt{36}$
- c. -12
- d.  $-2\sqrt{6} + \sqrt{24}$

4. Simplify the following expression:

$$5 - 8^2 + 3(4^3 - 32)$$

- a. -71
- b. -27
- c. 27
- d. 37

5. What is the slope of the line graphed here?

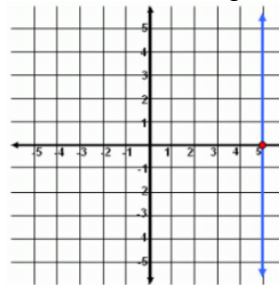


- a. -3
- b. 3
- c.  $\frac{1}{3}$
- d.  $-\frac{1}{3}$

6. What is the slope of the line that contains  $(-4, 7)$  and  $(-4, -4)$ ?

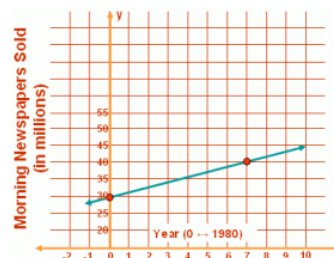
- a.  $\frac{11}{8}$
- b.  $\frac{11}{3}$
- c. 0
- d. undefined

7. What is the equation of this graphed line?



- a.  $y = 5$
- b.  $x = 5$
- c.  $y = 5x + 1$
- d.  $x + y = 5$

8. This graph shows the number of morning newspapers sold in the United States from 1978 to 1990 with  $x = 0$  corresponding to 1980. What does the y-intercept of the graph tell you?



- a. In the year 1980, 30 million morning newspapers were sold.
- b. In the year 1978, 30 million morning newspapers were sold.
- c. In the year 1930, 0 morning newspapers were sold.
- d. From 1980 to 1990, the number of morning newspapers sold increased continually.

9. Which statement about the graphs of  $y = 2x$  and  $y = 3x$  is true?
- Their y-intercepts are the same, but the slope of  $y = 2x$  is greater.
  - Their y-intercepts are the same, but the slope of  $y = 3x$  is greater.
  - Their slopes are the same, but the y-intercept of  $y = 2x$  is greater.
  - Their slopes are the same, but the y-intercept of  $y = 3x$  is greater.

10. Compare the lines  $y = 2x + 2$  and  $y = 2x$  and determine which of the following is true.

- They are parallel.
- They are perpendicular.
- They are the same line.
- They have the same y-intercept.

11. The table below shows the total number of clients that an accounting firm serves each month. If  $x$  represents the number of months of operation and  $y$  represents the total number of clients that are served by the firm each month, which equation best shows the relationship between  $x$  and  $y$ ?

Months of Operation	Number of Clients
1	3
2	8
3	13
4	18
5	23
6	28

- $y = 3x$
- $y = x - 4$
- $y = 5x - 2$
- $y = \frac{1}{5}x$

12. Which of the following is a nonlinear equation?

- $y = \frac{x}{3} + 4$
- $y = 3x + 4$
- $y = \frac{3}{x} + 4$
- $y = \frac{x+3}{4}$

13. At 8:00 p.m., the temperature is  $69^\circ\text{F}$ . At 11:00 p.m., it is  $53^\circ\text{F}$ . Estimate the average rate of change in temperature?

- $5.3^\circ\text{F}$  per hour
- $0.2^\circ\text{F}$  per hour
- $3^\circ\text{F}$  per hour
- $16^\circ\text{F}$  per hour

14. Which of the following is the equation of the line that passes through points  $(8, 4)$  and  $(10, 2)$ ?

- $y = x + 12$
- $y = 2x + 10$
- $y = -x + 12$
- $y = 2x + 12$

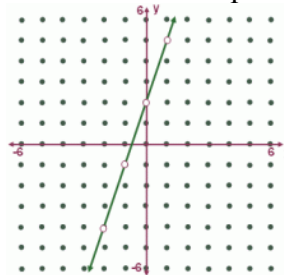
15. Write the equation of the line that passes through  $(3, 5)$  and has a slope of 4.

- $y = 4x + 7$
- $y = -4x - 5$
- $y = 4x - 7$
- $y = 4x + 5$

16. What is the equation, in standard form, of the line with a slope  $= -1$  and y-intercept  $= 4$ ?

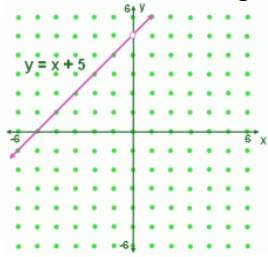
- $-x - y = 4$
- $-x + y = -4$
- $x - y = 4$
- $x + y = 4$

17. What is the equation of the line graphed here?



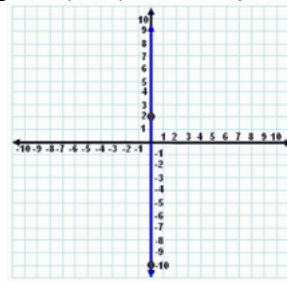
- $y = \frac{3}{2}x + 2$
- $y = 2x + 3$
- $y = 3x + 2$
- $y = \frac{2}{3}x + 2$

18. Given the graph of  $y = x + 5$ , which statement is true about the graph of  $y = x + 2$ ?



- The line  $y = x + 2$  is shifted 3 places down on the y-axis.
- The two lines are perpendicular.
- The line  $y = x + 2$  is shifted three places to the right on the x-axis.
- The line  $y = x + 2$  has a smaller slope than the line  $y = x + 5$ .

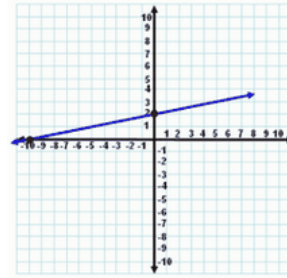
19. Which is the correct graph of the line if the x-intercept is (2, 0) and the y-intercept is (0, -10)?



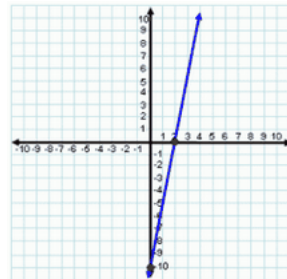
a.



b.



c.



d.

20. Which expression is equivalent to  $4x + 2(x - 3) + 10$ ?

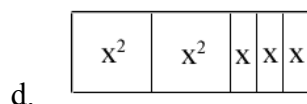
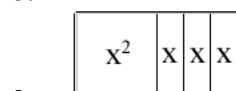
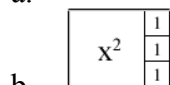
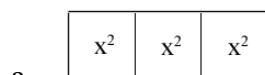
- $6x + 4$
- $6x - 16$
- $6x^2 + 4$
- $6x^2 - 16$

21. Find the difference of the polynomials.

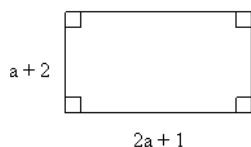
$$(10a^2 - 15a - 90) - (2a^2 + 5a - 1)$$

- $12a^2 - 10a - 91$
- $8a^2 - 20a - 89$
- $8a^2 + 20a + 89$
- $8a^2 - 10a - 91$

22. Which model shows the product for  $x(x + 3)$ ?



23. What is the area of the rectangle?



- a.  $2a^2 + 2$
- b.  $2a^2 + 5a + 2$
- c.  $2a^2 + 3a + 2$
- d.  $a^2 + 4a + 1$

24. Which of the following is a simplified form of this expression?

$$(x^{-4})(x^{-7})(x^5)$$

- a.  $x^{-5}$
- b.  $x^{140}$
- c.  $\frac{x^5}{x^{11}}$
- d.  $\frac{1}{x^6}$

25. Factor  $x^2 - 7x + 12$

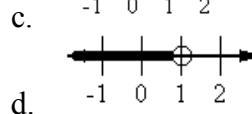
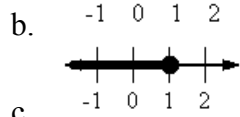
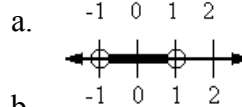
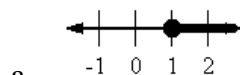
- a.  $(x - 4)(x + 3)$
- b.  $(x + 4)(x + 3)$
- c.  $(x + 4)(x - 3)$
- d.  $(x - 4)(x - 3)$

26. Solve  $-4x + 4 > 16$

- a.  $x > -3$
- b.  $x > -5$
- c.  $x < -3$
- d.  $x < -5$

27. Solve the inequality, then find the graph to its solution.

$$2(4x - 5) + 6x \leq 6 - 2x$$



28. The number of chirps that a cricket makes per minute and the air temperatures are related by a linear function. Some crickets chirp 100 times per minute at  $65^\circ\text{F}$  and 160 times a minute at  $80^\circ\text{F}$ . On average, how many more times a minute do these crickets chirp for each  $1^\circ\text{F}$  rise in temperature?

- a. 4
- b. 2
- c. 15
- d. 60

29. A formula for potential energy is  $E = mgh$ . Which equation below is equivalent to the formula?

- a.  $h = \frac{mg}{E}$
- b.  $h = Emg$
- c.  $h = \frac{E}{mg}$
- d.  $h = E - mg$

30. Find  $x$  if  $\frac{x+2}{x} = \frac{3}{2}$

- a. 4
- b.  $\frac{1}{4}$
- c. 6
- d.  $\frac{1}{6}$

31. If the following system is to be solved by elimination of  $x$ , and the first equation is multiplied by 3, then by which number should the second equation be multiplied?

$$2x - 5y = 1$$

$$-3x + 7y = -3$$

- a. 3
- b. 5
- c. -3
- d. 2

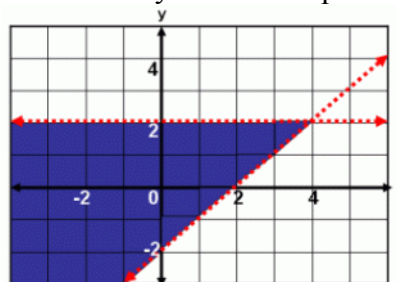
32. Determine the number of possible solutions for this system of equations.

$$2x + y = 3$$

$$4x + 2y = 8$$

- a. one solution
- b. no solution
- c. two solutions
- d. infinitely many solutions

33. Which system of inequalities is graphed?



- a.  $y > 2$   
 $x > y - 2$
- b.  $y < 2$   
 $x < y + 2$
- c.  $y < 2$   
 $y < x - 2$
- d.  $y > 2$   
 $y > x - 2$

34. What correlation would best describe the relationship between outdoor air temperatures and the amount a homeowner spends on heating?

- a. positive
- b. negative
- c. constant
- d. no correlation

35. The median price  $y$  (in thousands of dollars) of existing one-family homes for 1990 through 1993 in United States is given in this table (Source: National Association of Realtors).  $x$  is the year with  $x = 0$  corresponding to 1990,  $x = 1$  corresponding to 1991,  $x = 2$  corresponding to 1992, etc. The best fit equation for this data is  $y = 3.73x + 95.98$ . Use the best fit equation to predict the median price of a one-family home in 1994.

$x$	1990	1991	1992	1993
$y$	95.5	100.3	103.7	106.8

- a. \$112,400
- b. \$111,600
- c. \$110,900
- d. \$110,100

*Algebra 1 CRT Review Version 2 Key*

1. c
2. a
3. a
4. d
5. a
6. d
7. b
8. a
9. b
10. a
11. c
12. c
13. a
14. c
15. c
16. d
17. c
18. a
19. d
20. a
21. b
22. c
23. b
24. d
25. d
26. c
27. c
28. a
29. c
30. a
31. d
32. b
33. b
34. b
35. c